100

Given Range	Optimized Set
4788 - 5593	4788, 4789, 479X, 48XX, 49XX, 50XX, 51XX, 52XX, 53XX, 54XX, 550X, 551X 552X, 553X, 554X, 555X, 556X, 557X, 558X, 5590, 5591, 5592, 5593
800 - 2999	8XX, 9XX, 1XXX, 2XXX

Figure 1A

150

Given Range	Sub-Range 1	Sub-Range 2	Sub-Range 3	Sub-Range 4
4318-5689	4318-4319	4320-4999	5000-5679	5680-5689
560-2346	N/A	560-1999	2000-2339	2340-2346
4300-4399	N/A	N/A	4300-4389	4390-4399
4476-7688	4476-4479	4480-6999	7000-7679	7680-7688

Figure 1B

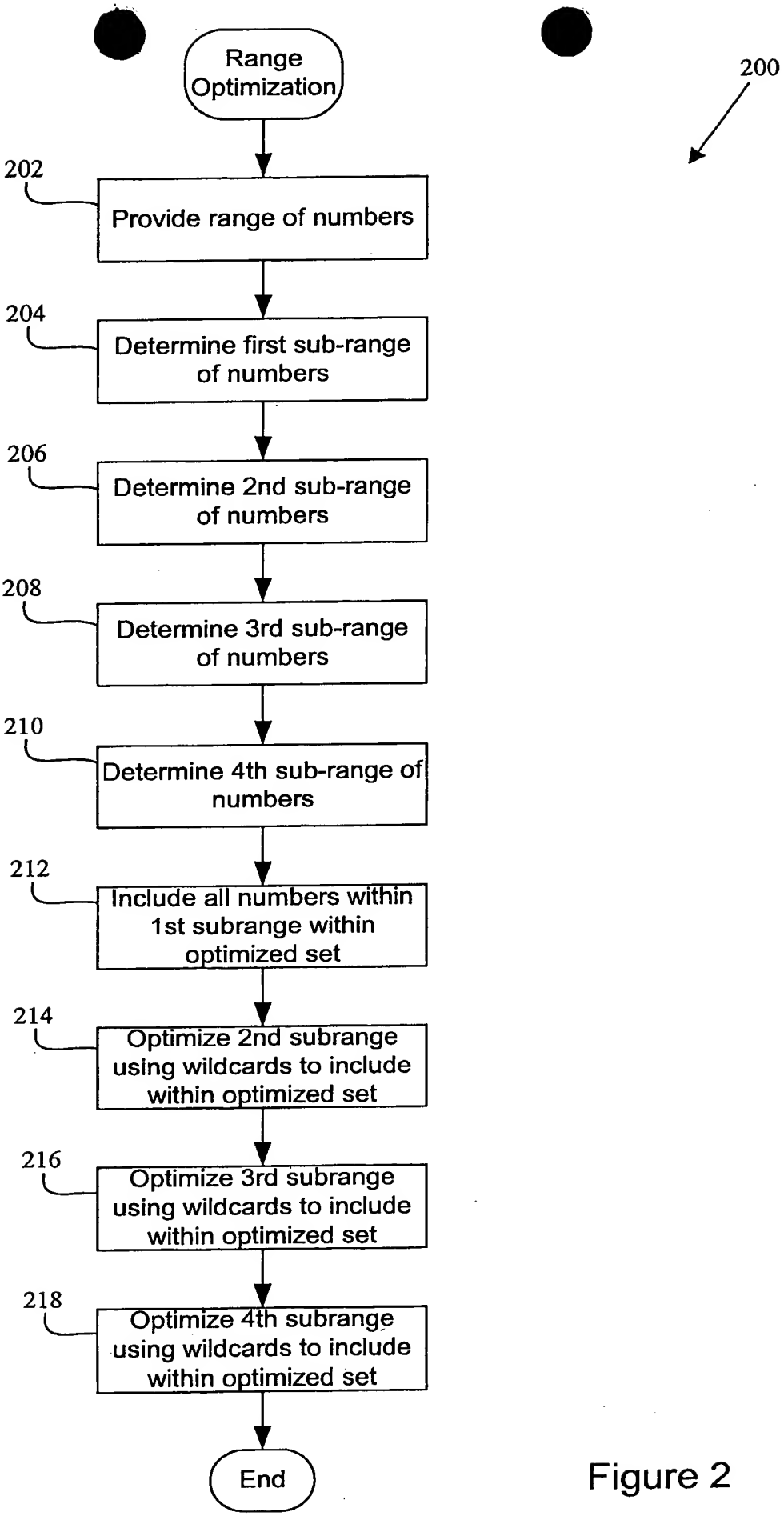
Range Optimization
200
202
Provide range of numbers
204
Determine first sub-range of numbers
206
Determine 2nd sub-range of numbers
208
Determine 3rd sub-range of numbers
210
Determine 4th sub-range of numbers
212
Include all numbers within 1st subrange within optimized set
214
Optimize 2nd subrange using wildcards to include within optimized set
216
Optimize 3rd subrange using wildcards to include within optimized set
218
Optimize 4th subrange using wildcards to include within optimized set
End

Figure 2

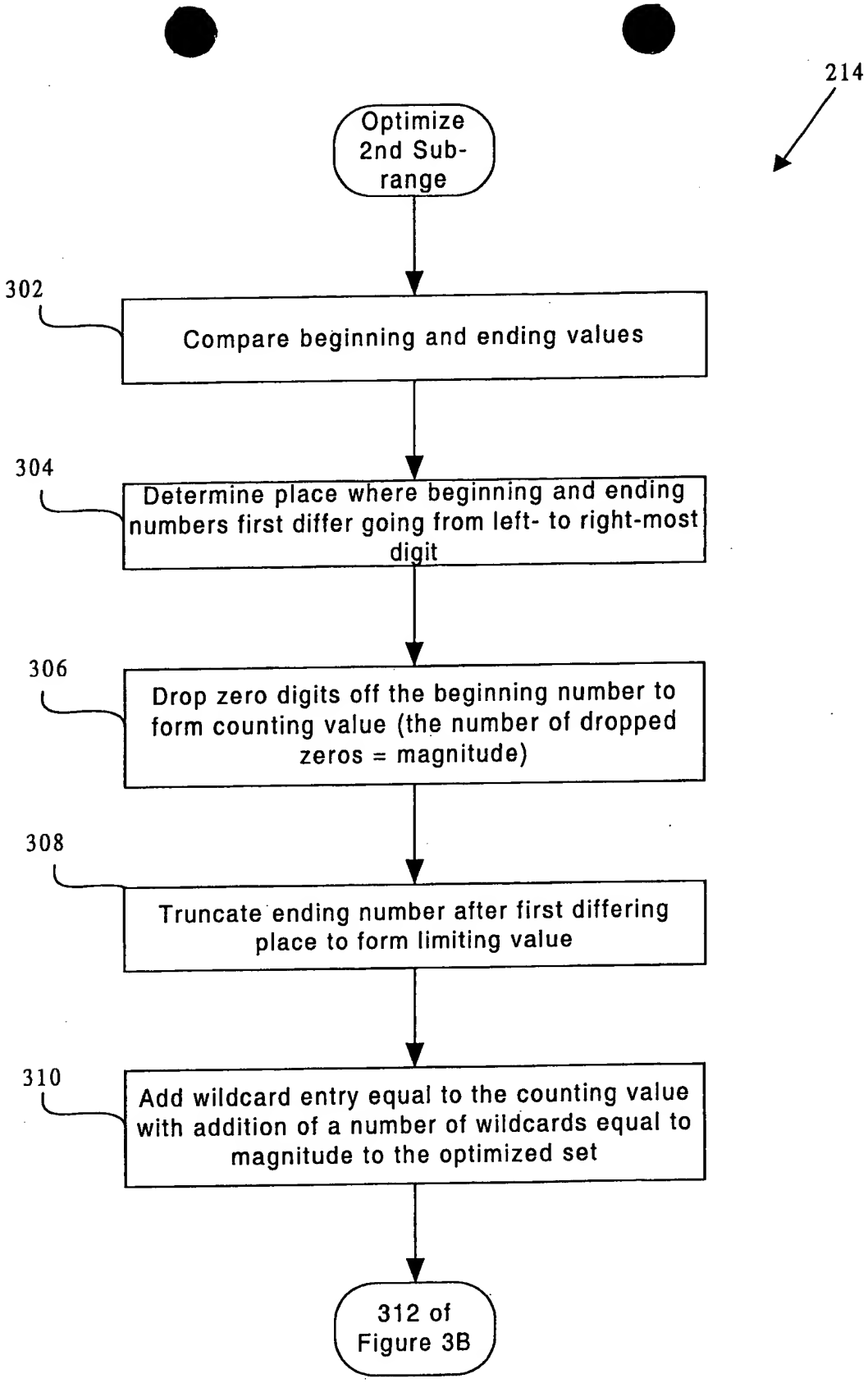
214
Optimize 2nd Sub-range
302
Compare beginning and ending values
304
Determine place where beginning and ending numbers first differ going from left- to right-most digit
306
Drop zero digits off the beginning number to form counting value (the number of dropped zeros = magnitude)
308
Truncate ending number after first differing place to form limiting value
310
Add wildcard entry equal to the counting value with addition of a number of wildcards equal to magnitude to the optimized set
312 of Figure 3B

Figure 3A

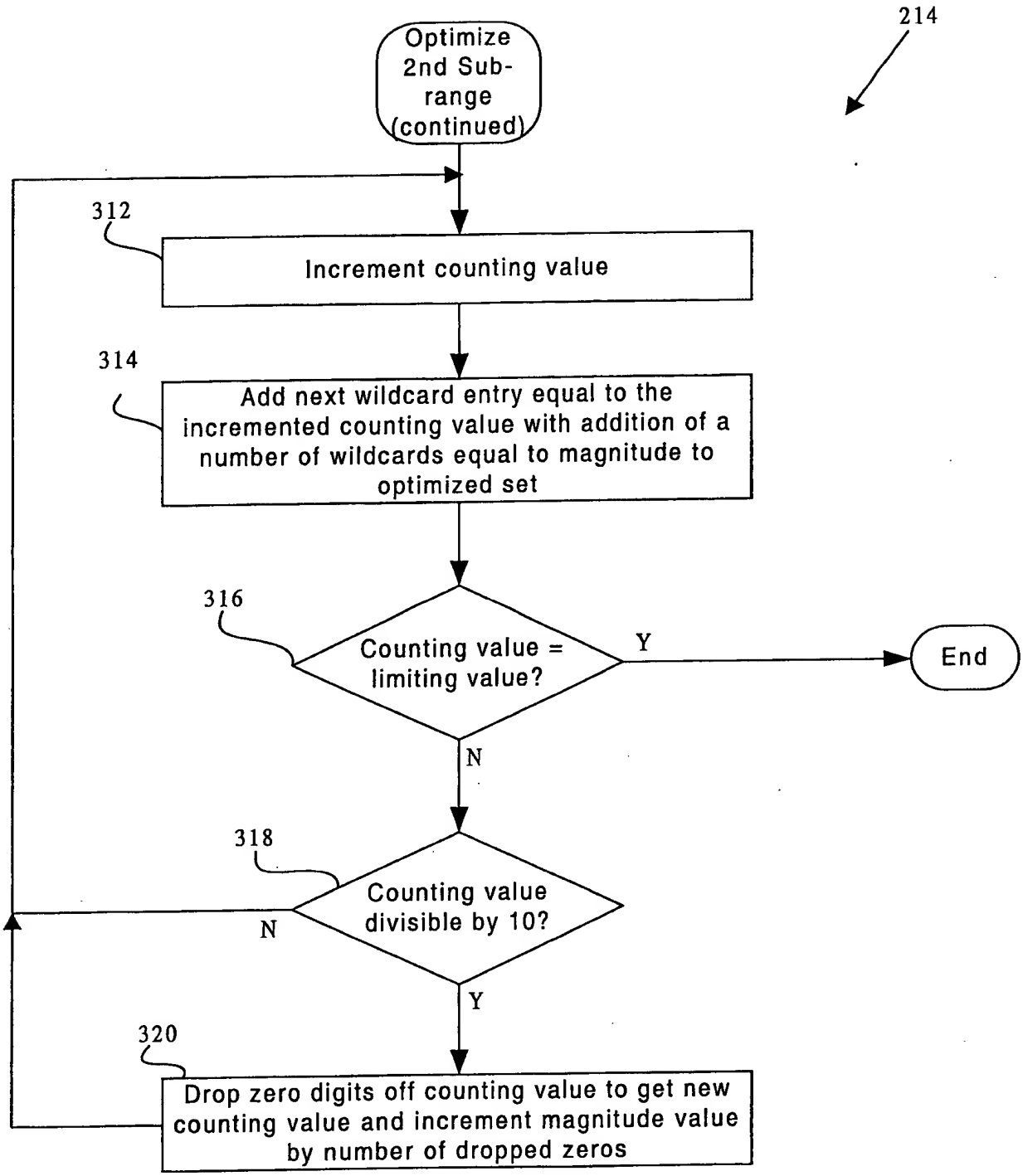
214
Optimize 2nd Sub-range (continued)
312
Increment counting value
314
Add next wildcard entry equal to the incremented counting value with addition of a number of wildcards equal to magnitude to optimized set
316
Counting value = limiting value?
Y
End
N
318
Counting value divisible by 10?
N
Y
320
Drop zero digits off counting value to get new counting value and increment magnitude value by number of dropped zeros

Figure 3B

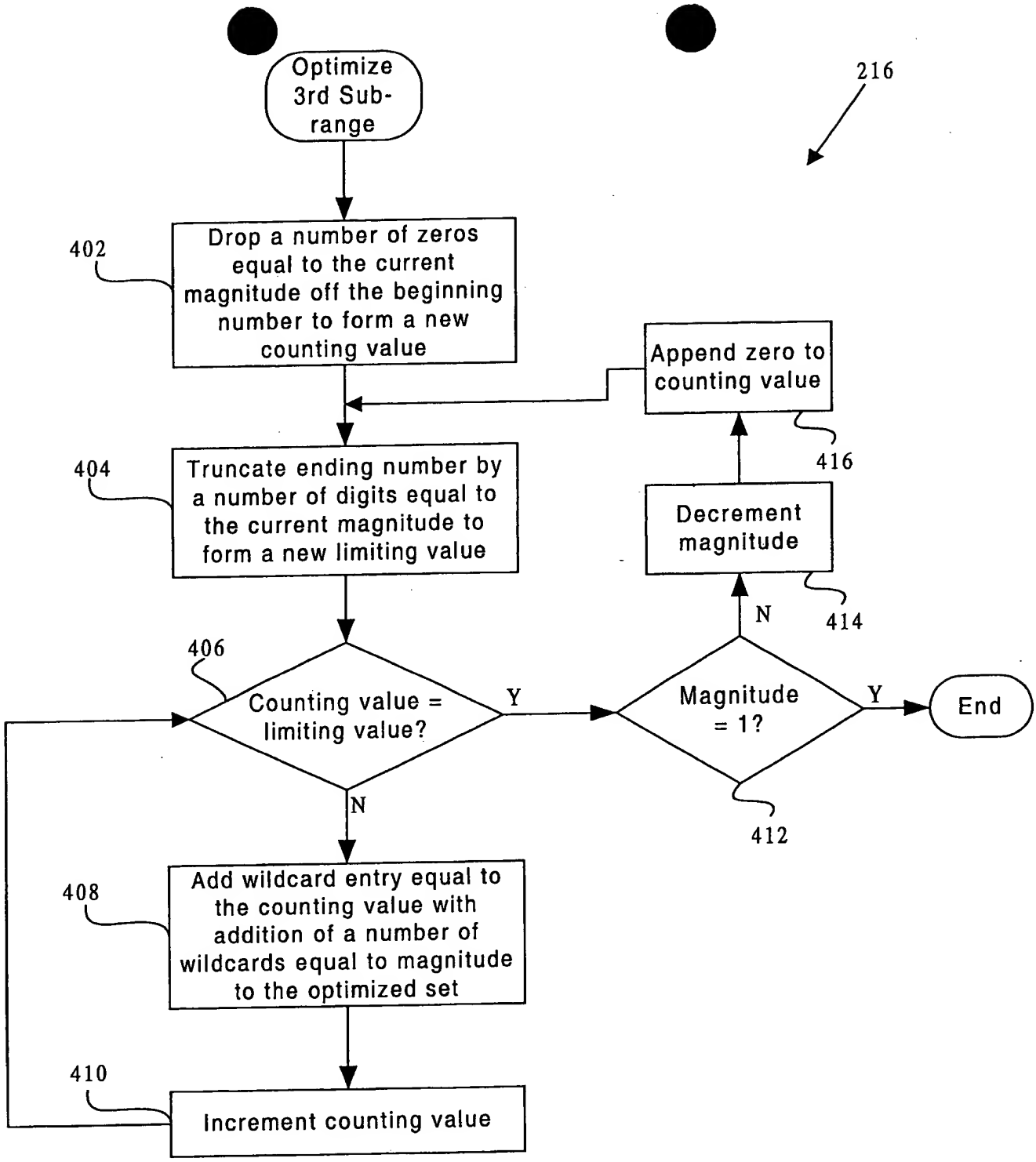
Optimize 3rd Sub-range
216
Drop a number of zeros equal to the current magnitude off the beginning number to form a new counting value
402
Truncate ending number by a number of digits equal to the current magnitude to form a new limiting value
404
Counting value = limiting value?
406
Y
N
Add wildcard entry equal to the counting value with addition of a number of wildcards equal to magnitude to the optimized set
408
Increment counting value
410
Magnitude = 1?
412
Y
N
End
Decrement magnitude
414
Append zero to counting value
416

Figure 4

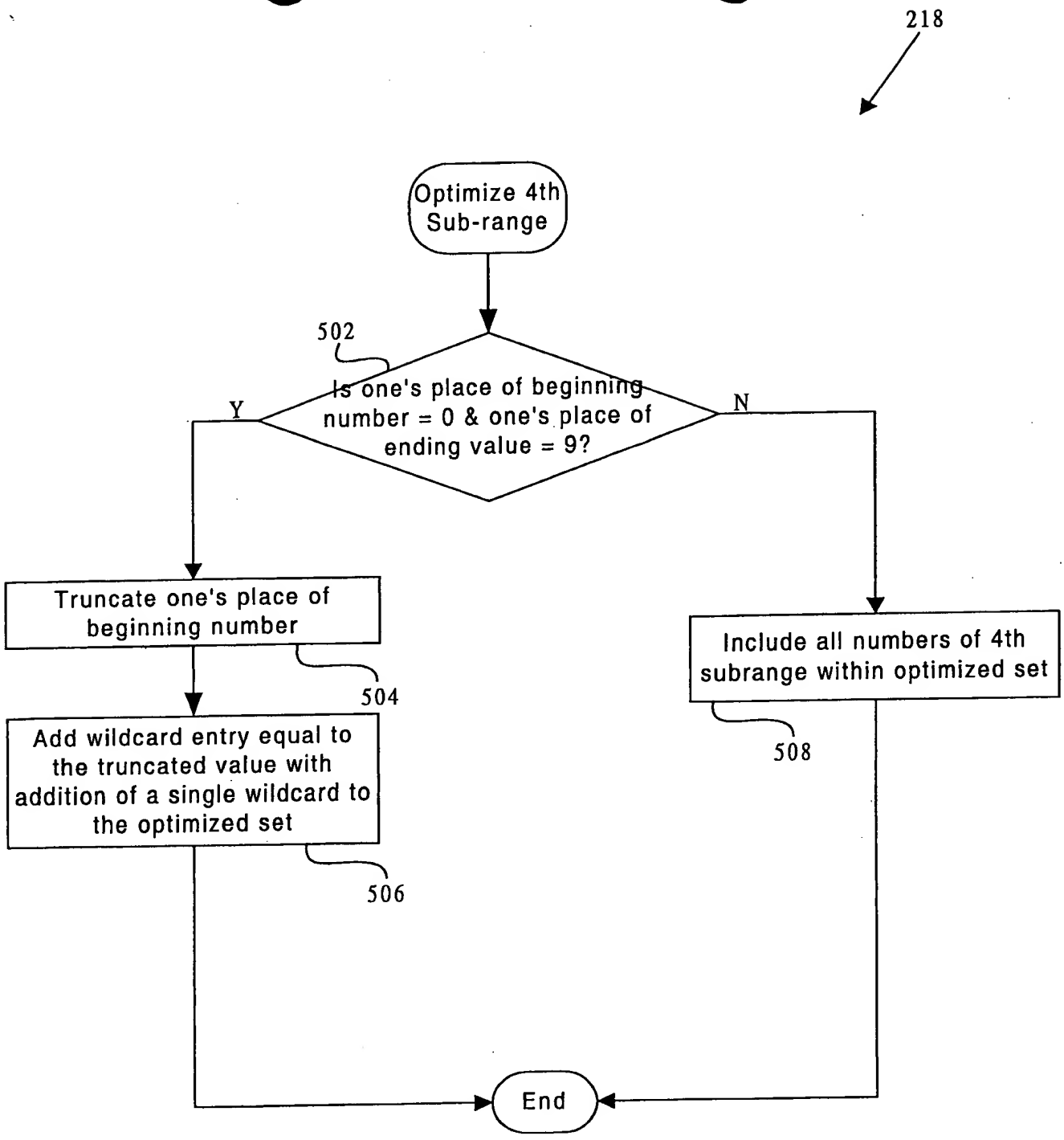
218
Optimize 4th Sub-range
502
Is one's place of beginning number = 0 & one's place of ending value = 9?
Y
N
Truncate one's place of beginning number
504
Add wildcard entry equal to the truncated value with addition of a single wildcard to the optimized set
506
Include all numbers of 4th subrange within optimized set
508
End

Figure 5

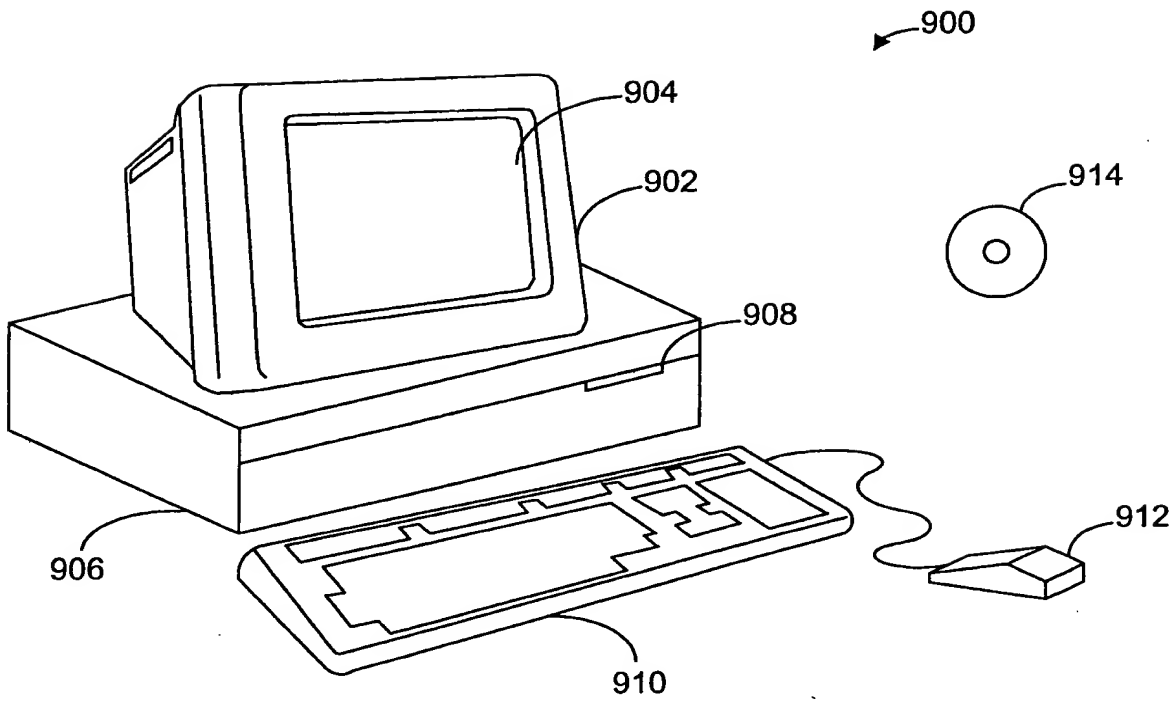

Figure 6A

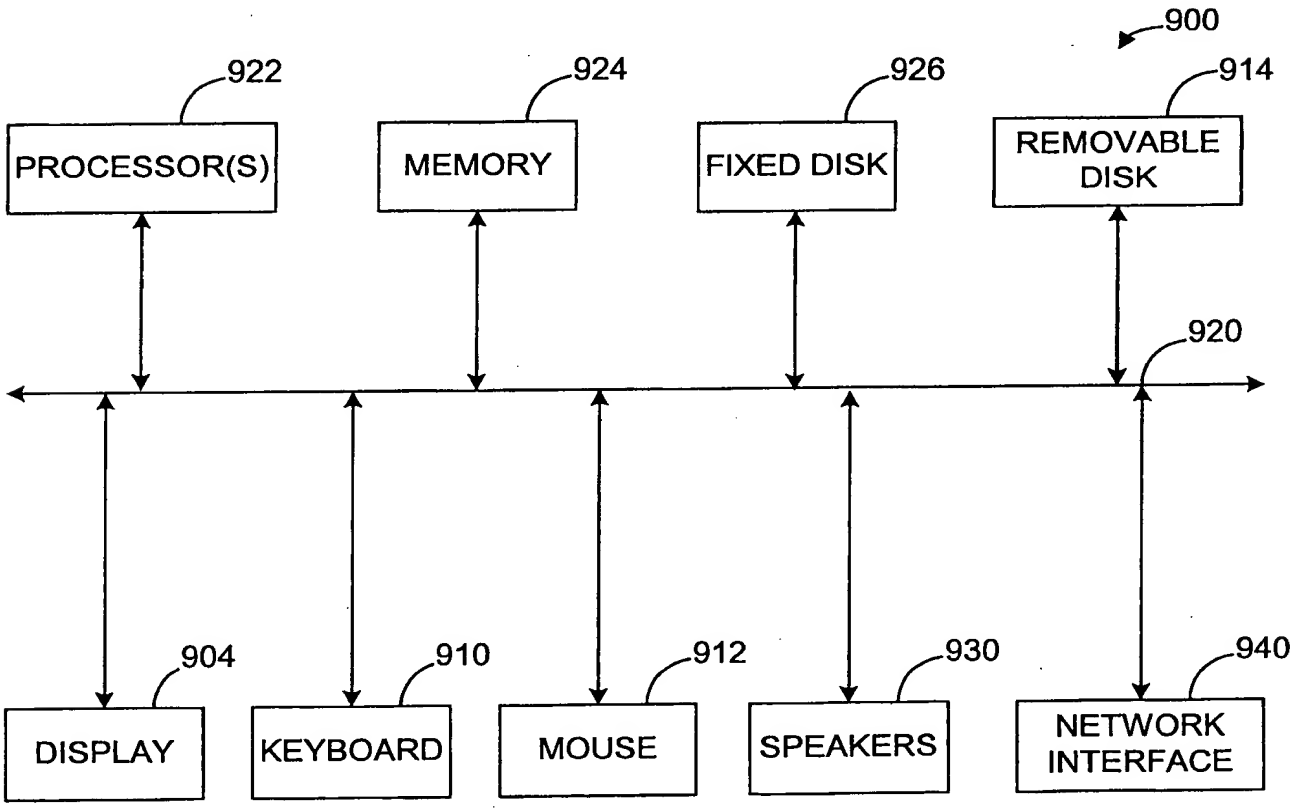

Figure 6B

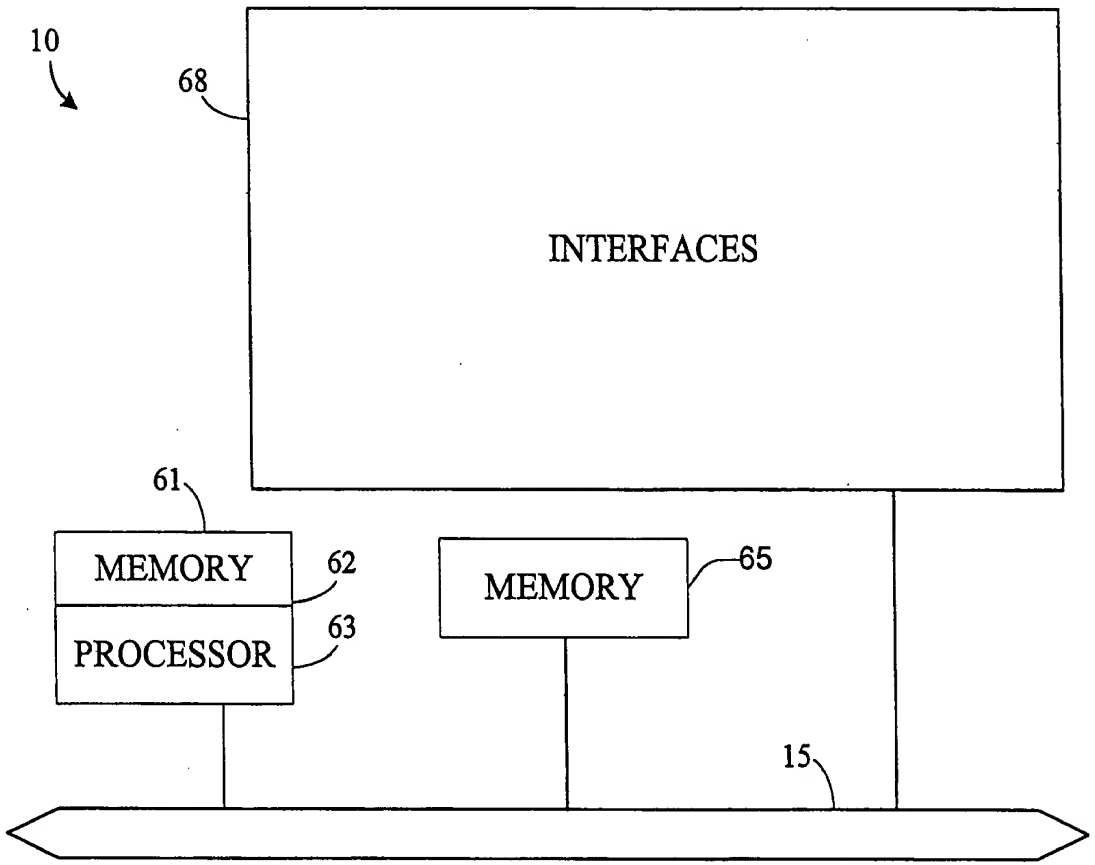

Figure 7